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RECENT INVESTIGATIONS IN ANCIENT ORIENTAL CHRONOLOGY.

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THE construction of a chronology of the history of the ancient Orient is fraught with peculiar difficulty on account of the scarcity of reliable data. The Old Testament has preserved lists of the kings of Judah and of Israel in their correct order, with the lengths of their reigns, but unfortunately the figures have been tampered with so as to bring out certain sum-totals,[1] and they have also suffered from textual corruption.

Back of the period of the kings the Hebrews had no knowledge of exact dates, although they seem to have preserved, in the main, a true memory of the order of events. The figures that are given for the duration of the period of the judges, for the sojourn in Egypt, and for the time of the patriarchs can be shown to rest upon a rough calculation of generations rather than upon authentic tradition. These figures, therefore, have no immediate value, although, when critically interpreted, they may aid in formulating a chronology. The Egyptian records also are disappointing. They give, it is true, valuable details for certain epochs; but they contain no reliable data that cover the whole course of ancient history. It is only when we come to the Assyro-Babylonian monuments that we find facts capable of being made the basis of an exact chronology.

The three main sources of information are the Babylonian List of Kings, the Assyrian Eponym Canon, and the Ptolemaic Canon.

The Babylonian List (A) is a cuneiform tablet discovered by George Smith, and first published completely by Pinches in the *Proceedings of the Society of Biblical Archæology*, May, 1884. It contains an enumeration in chronological order of the kings of Babylon from the time when it first became the leading city of western Asia to the time of the Persian conquest. The name of each king is preceded by the number of years that he reigned. The list is divided by lines drawn across the columns into nine (probably originally eleven) dynasties, and at the close of each dynasty the sum-total of all the reigns is given, and also usually the number of kings included in the dynasty. The subscription at the end of Dynasty IX, "22 dynasty of Babylon," refers unquestionably to the number of years, and not to the number of kings.[2] Unfortunately this invaluable historical document is badly mutilated. The entire first dynasty has been broken off, leaving only the sum, "eleven kings," still legible at the end. We possess, however, a duplicate list (B) for the first two dynasties, discovered by Rassam, and published by Pinches in the *Proceedings of the Society of Biblical Archæology*, December, 1880, and also a partial list (C) of the first dynasty, drawn up in the reign of Ammisadugga,[3] which enable us to restore the missing dynasty in List A. From the middle of Dynasty III the names of eighteen kings are lacking, and from Dynasty IV the names of six kings. Fortunately the sum-totals of the reigns of the first seven dynasties are intact. The whole of Dynasty VIII is broken out, and the absence of the sum-total which once stood at its end creates the chief difficulty in determining the exact dates of the early Babylonian kings. The list ends with Kandal[anu] (Ashur-ban-abal), but must originally have contained an additional dynasty, including the kings of the new Babylonian empire to the fall of Babylon.

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[1] *E. g.*, 480 years (twelve generations) from the building of the temple to the exile, and 240 years (six generations) to the fall of the northern kingdom.

The Assyrian Eponym Canon is a document discovered by Sir Henry Rawlinson in the library of Ashur-ban-abal at Nineveh.[4] It contains a list of dignitaries of the Assyrian empire who, after the manner of the eponym archons at Athens, were chosen to give their names to a series of years. Seven copies of this canon are known; and, although no one of the copies is unbroken, yet by putting together the fragments a complete list of consecutive eponyms for 227 years may be constructed. One of the tablets, which covers a period of ninety-four years, contains, in addition to the names of the eponyms, a record of the most important events that occurred in their respective years. The beginning of a new reign is indicated by a deep line drawn across the column before the name of the eponym within whose period of office a new king came to the throne; and as the king himself filled the eponymate soon after his accession, it is possible by means of this list to determine the length of each of the reigns. The Eponym Canon runs parallel to Dynasties VII–XI of the Babylonian List, and the chronological relation of the two documents is determined through the circumstance that tablets of the time of Sargon, whose name appears both in the Babylonian List and in the Eponym Canon, are dated, not only by the year of his reign over Assyria, but also by the year of his reign over Babylon.[5] From these tablets it appears that the first full year of Sargon's reign over Babylon was the thirteenth full year of his reign over Assyria.

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[2] See LEHMANN, *Zwei Hauptprobleme der altorientalischen Chronologie*, p. 21; MARQUART, *Chronologische Untersuchungen*, p. 8.

[3] Recently published in *Inscriptions of the British Museum*, Vol. VI, pp. 9, 10; SAYCE, *Proceedings of the Society of Biblical Archæology*, January, 1899.

[4] First published by G. SMITH, *The Assyrian Eponym Canon*, 1875.

The Ptolemaic Canon is a chronological table preserved in the writings of the astronomer Claudius Ptolemæus, a contemporary of the emperor M. Antoninus Pius. It is a list of the kings of Babylon, Persia, Macedon, and Rome from Nabonassar to Antoninus. After the name of each king stands the number of years that he reigned, and in a second column the sum-total of years from the beginning of the era of Nabonassar.[6] This canon must have been begun in Babylon and thence have passed to the Greek astronomers of Alexandria. These added the Macedonian and Roman rulers, and reduced all the years of the Babylonian and Persian kings to Egyptian years of 365 days, beginning with the first of the month Thoth. Each king's reign is regarded as commencing with the first day of Thoth that occurs after his accession, and all of his reign

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[5] SCHRADER, *Keilinschriften und Geschichtsforschung*, p. 315.

[6] See WACHSMUTH, *Alte Geschichte*, p. 305.

COMPARATIVE TABLE.

Babylonian List.					Eponym List.	Ptolemaic Canon.		
B. C.	Dy-nasty.	No. of Kings.	No. of Years.	Name.	Name.	Name.	No. of Years.	Sum.
	I.	11	285					
	II.	11	368					
	III.	36	576					
	IV.	11	132					
	V.	3	21					
	VI.	3	20					
	VII.	1	6					
	VIII.	1	36	....				
		2	8 mo.	....				
		3	12	....				
		4	..	....				
		5	..	....	Rammannirari II.			
890		6	..	....	Tuklat-Ninib II.			
884		7	..	....	Ashurnatsirabal III.			
859		8	..	....	Shalmaneser II.			
824		9	..	....	Shamsi-Ramman IV.			
811		10	..	....	Rammannirari III.			
782		11	..	....	Shalmaneser III.			
772		12	..	....	Ashurdan III.			
754	IX.	1	..	Nabushumishkun	Ashurnirari II.			
747		2	..	Nabunatsir		Nabonassaros	14	14
745					Tiglath-pileser III.			
733		3	2	Nabushumiddin		Nadios	2	16
731		4	0	Nabushumukin				
731	X.	1	3	Kinzer		Chinzeros and	5	21
728		2	2	Pulu		Poros		
727					Shalmaneser IV.			
726		3	5	Ululai		Iloulaios	5	26
722					Sargon			
721		4	12	Merodach-baladan		Mardokempados	12	38
709		5	5	Sargon		Arkeanos	5	43
705					Sennacherib			
704		6	2	Sennacherib		Interregnum	2	45
702		7	3	Belibni		Belibos	3	48
699		8	6	Ashurnadinshum		Aparnadios	6	54
693		9	1	Nergalushezib		Regebelos	1	55
692		10	4	Mushezib-Marduk		Mesesmordakos	4	59
688		11	8	Sennacherib		Interregnum	8	67
681					Esarhaddon			
680		12	..	Esarhaddon		Asaradinos	13	80
668					Ashurbanabal			
667		13	..	Shamashshumukin		Saosdouchinos	20	100
647		14	..	Kandalanu		Kineladanos	22	122
625						Nabopolassaros	21	143
604						Nabokolassaros	43	186
561						Illoaroudamos	2	188
559						Nerigasolassaros	4	192
555						Nabonadios	17	209
						Persian kings	214	424
						Kings of Macedon	294	718
						Roman kings	189	907

that falls before that time is assigned to the last year of his predecessor.

Beginning with Nabonassar, the Ptolemaic Canon overlaps Dynasties IX and X of the Babylonian List, and also at least one hundred years of the Eponym List. The relation between these three documents I have exhibited in the table on the opposite page. The Ptolemaic Canon thus makes the connection between the chronology of classical history and the chronology of the ancient Babylonian and Assyrian records. Reckoning back from Antoninus (July 20, 137 A. D.), the era of Nabonassar is found to begin with February 27, 747 B. C. The years of the Babylonian kings in the Ptolemaic Canon correspond with the years given in the Babylonian List, so that it is possible with the aid of the Canon to date exactly all the kings of Dynasties IX and X. The beginning of Sargon's reign over Babylon is thus fixed in the year 709 B. C., and since this was the thirteenth year of his rule over Assyria, the first full year of that rule must have been 721 B. C., and he must have come to the throne in 722 B. C. But if the first eponym of Sargon's reign corresponds to the year 722, then it is a simple matter of addition or of subtraction to determine the date corresponding to every one of the 227 names in the Eponym List.

For the year which, according to these calculations, should correspond to 763 B. C. the Eponym Canon with Historical Notices appends the remark: "In the month Sivan the sun was eclipsed." Modern astronomical calculation has shown that on June 15, 763 B. C., an almost total eclipse of the sun occurred at Nineveh. Thus the absolute historical credibility of the Ptolemaic Canon, of the Eponym Canon, and of the Babylonian List so far as it is parallel to the Ptolemaic Canon, is brilliantly confirmed.

From the table just given it is clear that we have an exact chronology of the kings of Babylon as far back as 747 B. C. and of the kings of Assyria as far back as 889 B. C. Beyond these points we are in uncertainty on account of our ignorance of the duration of Dynasty VIII preceding Nabonassar, which is broken out of the Babylonian List. It is possible, however, to fix approximately the duration of this dynasty through synchronisms with Assyrian kings whose dates are given by the Eponym Canon. Six kings of Dynasty VIII are known in chronological order, and the contemporaneous Assyrian kings are also known from an Assyrian document known as the Synchronous History.[7] These kings are as follows:

Shamash-mudammiq.	Ramman-nirari II.
Nabu-shum-ishkun.	
Nabu-abal-iddin.	Tuklat-Ninib II.
Marduk-nadin-shum.	Ashur-natsir-abal.
Marduk-balatsu-ikbi.	Shalmaneser II.
Bau-akh-iddin.	Shamshi-Ramman IV.

Shamash-mudammiq was killed by Nabu-shum-ishkun during the reign of Ramman-nirari II., and Bau-akh-iddin was taken prisoner by Shamshi-Ramman IV. A careful examination of the tablet on which the Babylonian List is written shows that there cannot have been more than fourteen lines between Nabu-natsir (Nabonassar) and the beginning of Dynasty VIII. Of these one must have been occupied by the sum-total of the reigns of Dynasty VIII, so that there cannot have been more than thirteen names of kings.[8] Now, from Ramman-nirari II., the contemporary of Shamash-mudammiq, to Tiglath-pileser III., the contemporary of Nabonassar, there are nine Assyrian kings. Dynasties IX and X include twenty Babylonian kings, while for the corresponding period in Assyria there are only seven kings. In the above table six kings of the dynasty in question are contemporaneous with five kings of Assyria. Babylon was more subject to revolutions and to foreign conquests than was Assyria, consequently the total number of its kings during a given period was always considerably larger than that of the kings of Assyria during the same period. This shows that the name of Shamash-mudammiq must be inserted as near as possible to the beginning of Dynasty VIII, for thirteen kings of Babylon are not too many to correspond to nine kings of Assyria. Shamash-mudammiq cannot be identified with the first king of Dynasty VIII, since both of his successors are known to have reigned longer than the two kings whose numbers are preserved in the list in the second and third places; but he may be identified, with high probability, with the second king of the dynasty, whose brief reign of eight months suggests that he met a violent death. Ramman-nirari II., according to the Synchronous History, was the contemporary of Shamash-mudammiq and also of Nabu-shum-ishkun; but Ramman-nirari's reign, according to the Eponym Canon, came to an end in 890 B. C.; consequently, if we add to 890 B. C. the years of the first three kings of Dynasty VIII, we shall obtain 938 B. C. as the approximate date for the beginning of this dynasty.

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[7] *Keilinschriftliche Bibliothek*, Vol. I, p. 200.

[8] See LEHMANN, *Zwei Hauptprobleme*, pp. 24 ff.

The gap produced by the breaking out of Dynasty VIII having thus been bridged, it is possible, by simply adding the totals in the List of Kings, to determine the beginnings of all the earlier dynasties. They are as follows: Dynasty VII, 943 B. C.; Dynasty VI, 963 B. C.; Dynasty V, 984 B. C.; Dynasty IV, 1116 B. C.; Dynasty III, 1692 B. C.; Dynasty II, 2060 B. C.; and Dynasty I, 2364 B. C., according to List B, or, according to the earlier and more reliable figures of Ammisadugga, 2345 B. C.

This approximate dating is confirmed by a number of chronological statements of the Babylonian and the Assyrian inscriptions. Ashur-ban-abal (Sardanapalus) records that, when he captured Susa (about 645 B. C.), he brought back the statue of the goddess Nanaia, which Kudur-nankhundi I., king of Elam, had carried away from Erech 1,635 years before, that is, about 2280 B. C.

Nabu-na'id (Nabonidus), the last king of Babylon, records that in consequence of a great storm the foundations of the temple Ebarra were uncovered, and he beheld "the inscription of the name of Khammurabi, an ancient king, who, 700 years before Burnaburiash, had built for Shamash upon the ancient foundation Ebarra and the tower-temple."[9] Nabu-na'id also relates in one of his inscriptions: "Eulbar his [Shamash's] house in Sippar of Annunit, on which for 800 years Shagaraktiburiash, king of Babylon, son of Kudur-Bel, no king had built—its ancient foundation-stone I sought, found, and read."[10] A copy of a seal of

[9] *Keilinschriftliche Bibliothek*, Vol. III, 2, p. 90.

[10] Sippar Cylinder, iii, 27 ff. (Rawlinson, V, 64; *Keilinschriftliche Bibliothek*, Vol. III, p. 106).

Tuklat-Ninib bears the inscription: "Tuklat-Ninib, king of the world, son of Shalmaneser, king of Assyria, the conqueror (?) of Babylon, etc." To this Sennacherib has appended the statement: "This seal was given as a present from Assyria to Babylonia. I, Sennacherib, king of Assyria, 600 years later conquered Babylon, and from the treasure of Babylon I brought it forth and carried it away." All these statements can be shown to be in accord with our determination of the approximate dates of the earlier dynasties. They confirm our calculation of the duration of the missing Dynasty VIII, and also the trustworthiness of the Babylonian List.

There is one other statement of the monuments which demands particular consideration. Sennacherib in the rock inscription of Bavian[11] says: "Ramman and Sala, the gods of the city of Ekallate, which Marduk-nadin-akhe, king of Akkad [Babylonia], in the time of Tiglath-pileser [I.], king of Assyria, took and carried to Babylon, I brought forth from Babylon 418 years later, and restored them to their place in the city of Ekallate." According to this statement, Marduk-nadin-akhe's victory over Tiglath-pileser I. occurred in the year 1107 B. C., 418 years before Sennacherib's conquest of Babylon in 689 B. C.

It is the great service of Lehmann to have demonstrated that this datum of Sennacherib is inconsistent with all the other chronological data that have come down to us in the monuments; and that, if it is ignored, the other data are harmonious and mutually confirmatory. Since Sennacherib's statement is about 100 years out of the way, Lehmann's conjecture that 418 is merely a scribal error for 318 commends itself as highly probable.[12] The failure of earlier historians to recognize the impossibility of Sennacherib's datum, and the use of it to bridge the gap in Dynasty VIII, have introduced great confusion into the history of the ancient Orient, and have necessitated the assumption of a gap of 100 years in Assyrian history after the death of

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[11] Rawlinson, III, 14, 48-50; *Keilinschriftliche Bibliothek*, Vol. II, p. 118.

[12] So E. MEYER, *Literarisches Centralblatt*, 1899, No. 4; RÖSCH, *Jahresbericht für Geschichtswissenschaft*, 1898, Vol. I, p. 17: PRÀŠEK, *Berliner philologische Wochenschrift*, 1898, No. 42; FOSSY, *Revue archéologique*, 1899, pp. 363 ff.; TIELE, *Zeitschrift für Assyriologie*, 1900, pp. 390 ff.

Tiglath-pileser I. That such a gap really exists is in the last degree improbable. If this correction be made in the figure, Sennacherib's statement becomes valuable for a more exact determination of the chronology of the earlier Babylonian dynasties. Following out this idea, Lehmann, by an elaborate series of investigations, has reduced the margin of uncertainty to a period of nine years. In the upper limits his dates agree with those which we have assumed provisionally on the basis of our calculation of the approximate duration of Dynasty VIII. The dates of the dynasties being determined, it is possible from a study of the monuments to fill out nearly completely all the gaps in the Babylonian List.

For the chronology of the period prior to the beginning of the Babylonian List we are shut up to a rough calculation of the duration of the early dynasties. We know that the invasion of Babylonia by the Elamitic king Kudur-Nankhundi occurred about 2280 B. C., 1,635 years before Ashur-ban-abal's capture of Susa. This invasion was probably the cause of the downfall of the dynasty of Isin. Six kings of the dynasty are known. If we make an estimate of 120 years for the six and allow fifty years for possible gaps, we are brought back to 2450 B. C. for the beginning of this dynasty. It was preceded by the dynasty of Erech, to which two kings are known to have belonged. Adding 100 years as a liberal allowance for this dynasty, we reach 2550 B. C. The dynasty of Erech was preceded by the second dynasty of Ur, consisting of five kings.[13] Allowing 100 years for these, we are brought back to 2650 B. C. for the beginning of this dynasty. Its first two kings were contemporaneous with Gudea and Ur-nin-girsu, patesis, or viceroys, of Lagash. Gudea's date, accordingly, cannot have been earlier than 2650. Before Gudea we know three patesis of Lagash, who are not necessarily consecutive, but who, for a variety of archæological and palæographic reasons, cannot be widely separated from one another. One hundred years is an ample allowance for them, even if we assume that there are two breaks in the list. This would bring Lugal-ushum-gal, the first of these patesis, back to 2750 B. C.; but Lugal-ushum-gal was the contemporary of Naram-Sin, king of Agade, and, therefore, Naram-Sin cannot be dated earlier than 2750 B. C.

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[13] That the dynasty of Isin did not intervene between a second and a third dynasty of Ur, as has commonly been supposed, has been demonstrated by THUREAU-DANGIN, *Orientalistische Litteratur-Zeitung*, June, 1898; see WINCKLER, *ibid.*, August, 1898; in spite of the contention of RADAU, *Early Babylonian History*, pp. 31 ff.

This conclusion is in conflict with a statement of the antiquarian king Nabuna'id that in his restoration of Ebarra, the temple of Shamash at Sippar, he discovered the foundation-stone of Naram-Sin, the son of Sargon, which for 3,200 years no king before him had beheld. Nabuna'id lived about 550 B. C.; adding 3,200, we obtain 3750 as the date of Naram-Sin. Here again Lehmann's conjecture of a scribal error in the cylinder of Nabuna'id seems almost indisputable. Instead of the two perpendicular wedges that stood before the sign for thousand, the copyist read three perpendicular wedges. This is an easier theory than that the datum of Nabuna'id is wholly fictitious. In any case it is certain that 2750 B. C. is a much nearer approximate date for Naram-Sin than 3750 B. C.

Before Naram-Sin we find his father, Sargon I., and a list of patesis and kings of Lagash and of Kish that carries us to at least 3500 B. C. for the beginning of Babylonian history.

The chronology of Egypt is far less certain than that of Babylonia. The only fixed point in the new empire is found in the statement on the back of the Papyrus Ebers that the heliacal rising of Sothis (Sirius) occurred on the ninth day of Epiphi in the ninth year of King D'sr-k'-rʿ, *i. e.*, Amenhotep I. (so Krall, Ermann, Spiegelberg, Petrie, Griffith, E. Meyer, Brandes, Mahler, Sethe, Schäfer, Lehmann, Borchardt). This datum enables us to fix very closely the reign of Amenhotep I.

The Egyptian year contained only 365 days; consequently every four years it fell a day behind the solar year, and in 1,460 years the new-year day made a complete circuit of the seasons. In order to calculate the relation between the civil year and the solar year the Egyptians observed as the beginning of the solar year the date on which the rising of Sirius coincided with the early dawn. When this rising fell on the first of Thoth of the civil year, a Sothic period of 1,460 years was begun. Now, we know from a statement of Censorinus that a heliacal rising of Sirius on the first of Thoth occurred about 139 A. D. From this fixed point it is possible to calculate the beginnings of all the previous Sothic periods by adding 1,460, and also to determine in which years the heliacal rising occurred on a given day of the civil year. Unfortunately we do not know for what latitude the statement of Censorinus holds true, nor do we know which of the three consecutive years during which Sirius rose heliacally on the first of Thoth corresponds to 139 B. C. This leaves a margin of nine years in the computation of Sirius dates.

Astronomical calculation shows that a heliacal rising of Sirius on the ninth day of Epiphi occurred between the years 1553–1544 B. C. Since this was the ninth year of Amenhotep I., his first year must have fallen 1562–1553. Coming downward from this year, we have as chronological data recorded length of the kings' reigns, synchronisms with Babylonian monarchs, and astrological observations. We know also that a heliacal rising of Sirius occurred at some time during the reign of Tahutimes III., but we do not know the precise year. Considerable uncertainty attaches to all these calculations, so that the best that can be attained is an approximation to the dates of the kings of the new empire.

For the determination of the reigns prior to Amenhotep I. historians have until very recently been limited to a computation of the figures found in the monuments, supplemented by various lists of kings, and the statements of the Egyptian historian Manetho. The main difficulty lies in the calculation of the length of the period of disorder between the close of the XIIth and the beginning of the XVIIIth dynasty, during which the Hyksos invaders dominated Egypt. The data for this period are exceedingly discordant. Manetho assumed a XIIIth dynasty of 453 years, according to Eusebius; but, according to Africanus, of 153 years. After this he placed a XIVth dynasty of 484 years, according to Eusebius; but of 184 years, according to Africanus; a XVth dynasty of six kings and 250 years, according to Eusebius; but of 284 years, according to Africanus; a XVIth dynasty of 190 years, according to Eusebius; but of 518 years, according to Africanus; and a XVIIth dynasty of 103 years, according to Eusebius; but of 151 years, according to Africanus. Josephus' report of Manetho mentions only six Hyksos kings who reigned 260 years, but states that the entire Hyksos rule lasted 511 years. The Turin Papyrus gives for this period a long list of names; but it is so fragmentary that their correct position cannot be determined, and the length of the reigns are almost entirely lost. The monuments of the period are scanty, and contain next to nothing that can be used for chronological purposes. Under these circumstances it is not surprising that the most varying estimates have been made of the interval between the middle and the new empire. The date of the close of the XIIth dynasty, according to Wiedemann, was 3250 B. C.; according to Petrie, 2265; and, according to Meyer, 1930.

This uncertainty seems now to be dispelled by a recent discovery in Egypt.[14] Early in the year 1899 there were found in Kahun, a ruined city of the XIIth dynasty near Illahun, a number of papyrus fragments, which proved to be the records of the local temple. Most of these were purchased by Dr. Reinhardt and have been loaned by him to the Berlin Museum. They contain many interesting items in regard to the conduct of the temple, but most important is the record, under the heading "Year 7," of a notice sent to the chief priest Ppy-htp by Nb-k'y-rʿ, the superintendent of temples: "This is to inform thee that the ascent of Sirius occurs on the sixteenth day of the fourth winter month. Inform (?) the lay priests of the city 'Mighty-is-the-deceased-Usertesen,' and of Anubis on his mountains, and of Suchos . . . . and post this letter on (the bulletin-board?) of the temple." Another fragment contains the record of the gifts that were presented on the day of the ascent of Sirius, namely, 200 loaves of bread and 60 pitchers of beer.

From these statements it follows that on the sixteenth day of the fourth month of the seventh year of Usertesen III. a heliacal rising of Sirius occurred. Applying the so-called Oppolzer method of computation, it is found that this rising of Sirius can have taken place either within the years 1876–1872 B. C., or, an entire Sothic period of 1,460 years earlier, within the years 3336–3332 B. C.

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[14] See BORCHARDT in *Zeitschrift für ägyptische Sprache*, 1899, No. 2.

Wiedemann[15] decides for the latter date, and places the end of the XIIth dynasty about 3260. Against this view is the fact that there is no archæological evidence of a long break between the XIIth and the XVIIth dynasties. In Thebes the monuments of the XVIIth dynasty are scarcely distinguishable in style from those of the XIIth dynasty, and in Elkab and Abydos the monuments of the XVIIth and of the XVIth dynasties stand in immediate connection with those of the XIIth.[16] Manetho knew the names of only six Hyksos kings, and no Hyksos monuments have been found except of these six. It is improbable, accordingly, that there was any Hyksos dynasty besides this one. That the Hyksos did not become assimilated to the Egyptians, like earlier and later conquerors of Egypt, also makes it probable that the period of their rule in Egypt was of short duration. In view of these facts it is impossible to adopt Wiedemann's theory that there was an interval of 700 years between the close of the XIIth dynasty and the beginning of the XVIIIth.

I conclude, accordingly, with Borchardt, Müller, Breasted, and the majority of Egyptologists who have discussed the subject, that the seventh year of Usertesen III. must be identified with the year 1876–1872 B. C., and that the end of the XIIth dynasty falls about 1783 B. C. From the end of this dynasty to the expulsion of the Hyksos by Aahmes (*c.* 1570) is little more than 200 years; accordingly it follows that the XIIIth, XIVth, XVth, XVIth, XVIIth, and XVIIIth dynasties of Manetho's list were not consecutive, but were in the main contemporaneous dynasties that owed their rise to the disorganized condition of Egypt in consequence of the Hyksos invasion.

The correct date of the XIIth dynasty having been determined, the approximate dates of the kings of the middle and of the old empire may be ascertained by adding the figures found in the monuments, and, when these are lacking, by taking the figures preserved in the various lists. The data here are much more complete and reliable than during the period of the Hyksos rule; so that, the Hyksos gulf having been bridged, we may feel that our chronological calculations are approximately correct. For a discussion of the data on which they are based the reader is referred to Petrie's *History of Egypt*, Vol. I.

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[15] *Orientalistische Litteratur-Zeitung*, September, 1900, col. 321.

[16] See MEYER, *Geschichte Aegyptens*, p. 208; MARQUART, *Chronologische Untersuchungen*, p. 24; MÜLLER, *Mitteilungen der vorderasiatischen Gesellschaft*, Vol. III. 1898, p. 19.

The chronology of Babylonia, Assyria, and Egypt having been determined, as far as the materials at our disposal will permit, a chronology of the Old Testament may be established by noting the synchronisms of events with the history of the great empires. The fall of Jerusalem occurred in the nineteenth year of Nebuchadrezzar, *i. e.*, 586 B. C. Ahaz sent tribute to Tiglath-pileser III. to buy his aid against the Syrians and Ephraimites in 734, which was the first year of his reign. Between these two fixed points is an interval of 148 years. If now we add the recorded lengths of the reigns of the kings of Judah for the same interval, from the beginning of Ahaz's reign to the end of Zedekiah's, we have a total of 155 years. If, however, we assume that the first year of one king was identical with the last of his predecessor, *i. e.*, if we subtract 1 from the recorded length of each king's reign, the sum-total is exactly the same as that demanded by the Assyro-Babylonian records.

In 842, according to the Assyrian records, Jehu paid tribute to Shalmaneser II. This must have occurred in the first year of his reign, since Ahab was alive in 853, and if we push the beginning of Jehu's reign back of 842, there is no room left for Ahazia and Joram. From 842 to 734, accordingly, is another fixed period of 108 years, which corresponds with the kings of Israel from the first year of Jehu to the first year of Pekah, since the beginning of Pekah's reign must have coincided closely with the beginning of Ahaz's reign. For this period the sum of the recorded lengths of the kings' reigns is 114 years; but if we subtract 1 from each to allow for the overlapping of the last year of one with the first year of the next, we have the same total as in the Assyrian monuments.

Athaliah came to the throne of Judah in the same year in which Jehu came to the throne of Israel; consequently the sum of the reigns from the first year of Athaliah to the first year of Ahaz ought to equal the 108 years of the monuments and of the kings of Israel. Instead of this we find a total of 138 years. This is to be reduced by regarding the reigns of Uzziah and Jotham as largely contemporaneous, and by reducing the figure for Amaziah.

According to the annals of Shalmaneser II., Ahab fought at the battle of Qarqar in 854, but Jehu was on the throne in 842. On the most favorable estimate, therefore, the sum of the reigns of Ahaziah and Joram was not more than 11 years. For this the book of Kings gives 14 years. Even if we subtract 1 year from the reign of each king to allow for overlapping, we still have one year too much. The same superfluous year confronts us when we compare the sum-total of the kings from Jeroboam to Joram with the sum-total of the kings of Judah for exactly the same period, *i. e.*, from Rehoboam to Ahaziah. In the case of the kings of Israel the total of recorded years is 98, and in the case of the kings of Judah, 95; but if we subtract 1 from each reign, the total for Israel is 90 and for Judah 89. This shows the same excess of 1 year for Israel that we meet in comparison with the Assyrian data. It can hardly be doubted, therefore, that the reign of Joram of Israel must be reduced by 1 besides the 1 that is taken off to allow for the coincidence of his first year with the last year of Ahaziah.

The only other modification of the traditional figures that is necessary is in the case of the reign of Pekah. Instead of 20 of the received text we should probably read 2, which, like all other figures, must be diminished by 1 in making up totals.

From the considerations just presented it appears that the recorded lengths of the reigns rest upon a genuine historical basis, and that they may be easily harmonized with the Assyrian data. On the other hand, the synchronisms of the book of Kings rest only on editorial calculation and are incapable of being combined with the statements of the monuments. In constructing a chronology of the Old Testament they must be ignored. The relation of the biblical to the Assyrian chronology is exhibited in the following table:

COMPARATIVE TABLE OF OLD TESTAMENT CHRONOLOGY.

Assyro-Babylonian Synchronisms.	B. C.	Israel.			Judah.	
		Kings.	Years.	Sum.	Kings.	Years.
Period I.						
		Jeroboam I.	21*		Rehoboam	16
		Nadab	1		Abijah	2
		Baasha	23		Asa	40
		Elah	1			
		Omri	11			
Ahab fights with Shalmaneser II.	854	Ahab	21	78	Jehoshaphat	24
Earliest possible date for Ahaziah	853	Ahaziah	1		Jehoram	7
Latest possible date for Joram	842	Joram	10†		Ahaziah	0
Totals - - - - - -	11		11	89		89
Period II.						
Jehu pays tribute to Shalmaneser II.	842	Jehu	27		Athaliah	5
		Jehoahaz	16		Joash	39
		Joash	15		Amaziah	28
		Jeroboam II.	40		Uzziah	51
738, Menahem tributary to T.-pileser		Menahem	9			
Latest possible date for Pekahiah	734	Pekahiah	1		Jotham	15
Totals - - - - - -	108		108			138
Period III.						
Ahaz helped by Tiglath-pileser	734	Pekah	1‡		Ahaz	15
		Hoshea	8			
Sargon destroys Samaria	722	Siege Samaria	3			
Totals - - - - - -	12		12			
					Hezekiah	28
					Manasseh	54
					Amon	1
					Josiah	30
					Jehoiakim	10
					Jehoiachin	0
Nebuchadrezzar takes Jerusalem	586				Zedekiah	10
Totals - - - - - -	148					148

* All the kings' reigns given in this table are one year less than the figures given in the book of Kings, to allow for the fact that the first year of one king's reign was also the last year of his predecessor.

† Joram's reign must be reduced an additional one year to make the total correspond with the Assyrian total and with the total of the kings of Judah for the same period.

‡ The twenty years that Pekah is given in the received text must be a mistake. Probably we should read two, which then we must reduce by one, like all the other figures.

Reckoning back from 842, the year of Jehu's accession, we reach 931 as the date of Solomon's death. According to 1 Kings 11:42, Solomon reigned forty years, but this round number means only "a generation;" and it is unlikely, in view of the great age of David at his death (1 Kings 1:1), that Solomon could have reigned so long. If we allow him thirty years and suppose him to have come to the throne about 961 B. C., we shall probably be nearer the truth. With this conclusion agree the data of Menander's list of the kings of Tyre, preserved by Josephus, *Cont. Ap.*, i, 18; Eusebius, *Chron.;* and Theophilus, *Ad. Autol.*, iii, 100, 22,[17] and the statement of Josephus[18] that the temple was built in the twelfth year of Hiram, king of Tyre, and the fourth year of Solomon, 143 years and 8 months before the foundation of Carthage. Accepting von Gutschmid's date, 814 B. C., for the founding of Carthage, we reach 957 B. C. for the building of the temple; and, adding the three whole years of Solomon's previous reign, we reach 960 B. C. for the beginning of his reign. The coincidence of the two calculations is strong evidence that Menander's statements rest upon genuine authority.

In 1 Kings 6:1 it is said that the exodus occurred 480 years before the laying of the foundation of the temple in the fourth year of Solomon. Supposing the temple to have been founded about 957 B. C., according to the revised chronology of the period of the kings, this would place the exodus in 1437 B. C., or 100 years before Ramessu II., whom tradition remembers as the Pharaoh of the oppression. This, of course, is impossible. Moreover, it is clear that the number 480 is not exact, but rests upon a rough calculation of twelve generations of forty years each, forty years being the number always conventionally assumed by the Hebrew historians for a generation. This view is confirmed by the fact that the chronology of the books of Judges and Samuel is also based upon a scheme of twelve generations, and that the list of high-priests in 1 Chron. 6:1–9 gives twelve names from Aaron to Azariah, the contemporary of Solomon (*cf.* 1 Kings 4:2). That the tradition of twelve generations is correct is rendered probable by the remarkable list in Gen.

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[17] See RÜHL, *Rhein. Museum für Phil.*, pp. 565–78.

[18] *Cont. Ap.*, i, 17, 18.

36:31–39. This contains the names of eight kings "that reigned in the land of Edom before there reigned any king over the children of Israel." The first name is Bela, the son of Beor, who doubtless is to be identified with Balaam, the son of Beor, the contemporary of the generation after the exodus (*cf.* Numb., chaps. 22–24. Adding the three kings who reigned over Israel before Solomon, we obtain four generations from the conquest of Canaan to the building of the temple, which corresponds to the twelve generations from the exodus to the building of the temple.

We may assume, accordingly, that the tradition of twelve generations is correct. The only question, then, is: How many years should be allowed to a generation? Forty are obviously too many, since a generation is no longer than the interval between the birth of a man and the birth of his oldest son. In the Orient, where marriages were contracted early, this interval could scarcely average more than twenty years. The fifty-eight kings of the first three dynasties of Babylon fill an interval of 1,229 years; that is, they average a little over twenty-one years. The twenty kings of Judah from David (*c.* 1000) to Zedekiah (end 586) average a little over twenty years. If, starting from the beginning of Solomon's reign (*c.* 960), we reckon back twelve generations of twenty years each, we reach 1200 B. C. as the approximate date of the exodus. This fulfils the necessary condition of falling after the reign of Ramessu II. (1324–1228), the Pharaoh of the oppression.

For the earlier Hebrew chronology the only point of contact with the general history of the Orient is the statement of Gen. 14:1 that Abram was a contemporary of Amraphel (Khammurabi), the sixth king of the first dynasty of the Babylonian List (*c.* 2240 B. C.). If the fourteenth chapter of Genesis be historical, this gives us another fixed point; it is of little use, however, since the Old Testament figures for the patriarchal age are so entirely legendary that no chronological system can be based upon them.